

AMENDMENTS TO THE CLAIMS

Please cancel Claims 145-151, 162-167, and 177-182, without prejudice, as being directed to a non-elected invention, and please amend Claims 144 and 168 as follows.

Claims 1-134 (canceled).

135.(original): A non-human transgenic vertebrate produced by the steps of:
 (a) administering by injection into a testis of a male non-human vertebrate a transfection mixture comprising at least one polynucleotide encoding a gene product in operable linkage with a promoter, and at least one transfecting agent, other than a liposome/DNA complex, wherein said testis contains the germ cells of the male non-human vertebrate, and wherein said germ cells are selected from the group consisting of spermatogonial stem cells, type B spermatogonia, primary spermatocytes, preleptotene spermatocytes, leptotene spermatocytes, zygotene spermatocytes, pachytene spermatocytes, secondary spermatocytes, spermatids, and spermatozoa; and
 (b) allowing the polynucleotide encoding a gene product to be taken up by, and released into, the germ cells so that the released polynucleotide is incorporated into the genome of the germ cells of said male non-human vertebrate.

136.(original): The non-human transgenic vertebrate of Claim 135, wherein the polynucleotide comprises at least one biologically functional gene.

137.(original): A progeny non-human transgenic vertebrate, carrying in its germ cells at least one xenogeneic polynucleotide sequence, said non-human vertebrate being obtained by further breeding the male non-human vertebrate of Claim 135 with a female of the same species, and selecting the bred progeny non-human transgenic vertebrate for the presence of the transfected xenogeneic polynucleotide.

138.(original): The progeny non-human transgenic vertebrate of Claim 137, being a male comprising native germ cells carrying in their genomes at least one xenogeneic polynucleotide.

139.(original): The non-human transgenic vertebrate of Claim 135, which is selected from the group consisting of mammals and birds.

140.(original): The progeny non-human transgenic vertebrate of Claim 137, which is selected from the group consisting of mammals and birds.

141.(original): The non-human transgenic vertebrate of Claim 135, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, farm and marine mammals, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

142.(original): The non-human transgenic vertebrate of Claim 135, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

143.(original): The non-human transgenic vertebrate of Claim 135, wherein the mammal is a farm or marine animal.

144.(currently amended): The non-human transgenic vertebrate of Claim 135, wherein the mammal is selected from the group consisting of a bull and a pig, and the bird is a chicken.

Claims 145-151(canceled).

152.(original): A transgenic non-human vertebrate, comprising germ cells carrying in their genomes at least one xenogeneic polynucleotide, said transgenic non-human vertebrate having received an injection in its testis of male germ cells comprising at least one polynucleotide encoding a desired trait or product and at least one polynucleotide encoding a genetic selection marker, said male germ cells comprising the polynucleotide being isolated or selected from a donor male non-human vertebrate with the aid of the selection marker.

153.(original): The transgenic non-human transgenic vertebrate of Claim 152, wherein the polynucleotide comprises at least one biologically functional gene.

154.(original): A progeny non-human transgenic vertebrate, carrying in its germ cells at least one xenogeneic polynucleotide sequence, said non-human vertebrate being obtained by further breeding the male non-human vertebrate of Claim 152 with a female of the same species, and selecting the bred progeny non-human transgenic vertebrate for the presence of the transfected xenogeneic polynucleotide.

155.(original): The progeny non-human transgenic vertebrate of Claim 154, being a male comprising native male germ cells transfected with a xenogeneic polynucleotide.

156.(original): The non-human transgenic vertebrate of Claim 152, which is selected from the group consisting of mammals and birds.

157.(original): The progeny non-human transgenic vertebrate of Claim 154, which is selected from the group consisting of mammals and birds.

158.(original): The non-human transgenic vertebrate of Claim 152, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

159.(original): The non-human transgenic vertebrate of Claim 152, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

160.(original): The non-human transgenic vertebrate of Claim 152, wherein the mammal is a farm or marine animal.

161.(original): The vertebrate of Claim 152, wherein the mammal is selected from the group consisting of a bull and a pig, and the bird is a chicken.

Claims 162-167 (canceled).

168.(currently amended): A non-human transgenic vertebrate, or its progeny, comprising a native germ cell carrying in its genome at least one xenogeneic polynucleotide, said polynucleotide having been incorporated into the genome of said germ cell through the steps of:

(a) obtaining a ~~maturing~~ male germ cell from a non-human vertebrate;

(b) transfecting the germ cell in vitro with at least one polynucleotide encoding a desired trait in the presence of a gene delivery mixture comprising at least one transfecting agent, and optionally a polynucleotide encoding a genetic selection marker, at about or below the vertebrate's body temperature and for a transfection-effective period of time; and

allowing the polynucleotide encoding a desired trait to be taken up by, and released into the germ cell.

169.(original) The non-human transgenic vertebrate of Claim 168, wherein the polynucleotide comprises at least one biologically functional gene.

170.(original) The progeny non-human transgenic vertebrate of Claim 168, being a male comprising native male germ cells transfected with a xenogeneic polynucleotide.

171.(original): The non-human transgenic vertebrate of Claim 168, which is selected from the group consisting of mammals and birds.

172.(original): The progeny non-human transgenic vertebrate of Claim 170, which is selected from the group consisting of mammals and birds.

173.(original): The non-human transgenic vertebrate of Claim 168, which is a mammal selected from the group consisting of non-human primates, canines, felines, swine, pachyderms, equines, murine, ovines and bovine, or a bird selected from the group consisting of ducks, geese, turkeys and chickens.

174.(original): The non-human transgenic vertebrate of Claim 168, wherein the mammal is selected from the group consisting of wild and domesticated mammals.

175.(original): The non-human transgenic vertebrate of Claim 168, wherein the mammal is a farm or marine animal.

176.(original): The vertebrate of Claim 168, wherein the mammal is selected from the group consisting of a bull and a pig, and the bird is a chicken.

Claims 177-182 (canceled).